

Establishment of Prairie Cordgrass (*Spartina pectinata*) from Seed and Rhizome[©]

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DESCRIPTION

Prairie cordgrass is a warm-season perennial grass. It is native to most of the prairies of most of the United States and Canada. It has an average height of 3 to 8 ft. The leaf blades, 3 to 13 mm wide and up to 30 inches long, are coarse, very tough, and thick. The margins of the leaf are serrated and sharp. Stems are stiff. It is strongly rhizomatous with very tough, scaly rhizomes. Seedheads are composed of 10 to 20 spikes attached to the main stem. Each spike has up to 40 spikelets, all-growing in two rows on the side of the spike away from the stem. The seeds are flat, paper-like with barbed awns that attach firmly to fur or fabric. There are approximately 183,000 seeds per pound. It is also known as ripgut, cordgrass, marsh grass, slough grass, fresh water cordgrass, and broadleaf.

ADAPTATION

Prairie cordgrass has a broad climatic adaptation. It will grow on seasonally dry sites, tolerates alkaline conditions and high water tables, but is intolerant of prolonged flooding. It will grow on a wide array of soil types, but prefers a soil other than sand. Prairie cordgrass is found in wet meadows, sloughs, potholes, and drainage ways. It is associated with various species including sedges and rushes.

ESTABLISHMENT

Prairie cordgrass can be established from seed or rhizomes. Following are guidelines for each of these propagation methods.

Seed Propagations:

- Seeding method:
 - Drill
 - Broadcast
- Seeding rate: Based on 183,000 seeds/lb, following are general seeding rates. Actual rates may vary depending on site locations and purpose of planting. These recommendations are guidelines for establishment in the northern Great Plains.
- 30 seeds/ft² [7 lbs Pure Live Seed (PLS)/acre]
- 1/4 to 1 pound PLS/acre in wet meadow mixes
- Seeding depth: 1/2 to 3/4 inches

- Seed quality:
 - **Viability:** Viability of seed decreases when stored under high temperatures and humidity. In controlled storage, germination remains good for about 3 years. Current purity and germination tests (9 months or less) are needed for accurate seeding rates. Germination tests may be difficult to interpret, however, as there are no standardized testing procedures. You may want a second opinion for newer lots with low germinations. Dormancy reported on seed tests should be considered in seed viability.
 - **Seed Source:** Most seed of prairie cordgrass is produced in the northern regions of North America. Insect predation inhibits seed production in more southern climates.

Rhizome Propagation:

- **Vegetative Material Quality:** The strong rhizomes can be used for propagation. The ideal piece of vegetative material is a “J”-hook piece of rhizome with buds and 4 to 12 inches of dry stem. Other rhizome pieces can be used if there are roots and at least one bud. The stem length is not critical for growth, but, if attached, makes planting and handling easier.
- **Vegetative Source:**
 - Local sites such as a ditch or wet meadow
 - Nursery propagation bed — material is usually more uniform and plants tend to be larger and stronger making them easier to handle and improving survival.
- **Harvest Date:**
 - Spring (early April-June)
 - Fall (dormant-October/November) rhizomes dug in the fall should be stored in controlled conditions of temperatures near freezing. Do not allow pieces to become too warm or dry.
- **Harvest Method:** Vegetative material can be dug by hand or with an undercutter, disk, or plow. Depth of digging will vary depending on site conditions. In older stands, the intertwined rhizomes are coarse, stiff, and have sharp buds. Material most easily processed is from younger growth found on the outside edge of an old stand or from newer plantings. Plants 2 to 3 years old would be the easiest material to handle and process. Once rhizomes are dug, pieces should be cut as described above. It is important to keep processed rhizomes cool and moist until planting. Another method of establishment would be to scatter the rhizomes, cover, and firm the planting bed.
- **Planting Method:** Rhizomes should be planted with the shoot upright. Roots and at least part of the shoot should be buried. The average planting depth should be 3 to 6 inches. Rhizomes have been successfully planted using a tree planter and by hand planting. Air space around the planted rhizome should be removed by packing.
- **Spacing:** This will vary depending on the purpose of the planting and site conditions.

- **Seed Increase Fields and Nursery Beds:** Recommended spacing between rows is 6 to 15 ft. Suggested spacing within row is 3 to 6 ft.
- **Streambanks, Riparian Areas, Other Erosion Control Sites:** Spacing can vary, depending on slope, stabilization required, mulch, and available plants and sources. Generally, plants are spaced 2 to 10 ft apart and planted in off-set rows. Rhizomes planted along streambanks should be planted several feet beyond the water line. Cordgrass is tolerant of frequent flooding. Ice jams and fluctuating water can wash out plants closer to the water line. Rhizomes planted higher up the slope will readily send shoots down the slope toward the water line.

MANAGEMENT

Seedling vigor is only moderate, and seed often germinates throughout the course of the summer. Seedlings develop slowly. Stands are established more quickly by planting vegetative material compared to seeding. Adequate water at planting time is critical for establishment of seed and vegetative material. Once the stand is established, watering is less critical. Due to the rhizomatous growth and size of the plants, weed competition is not usually a problem in established stands. The first few years of establishment by seed may require weed control if heavily infested. Prairie cordgrass had few management needs. Mowing of prairie cordgrass more than once per season can reduce vigor.

Seed Production Fields: Seed fields established from rhizomes will produce some seed the 1st year. Seed fields established from seed usually takes 2 to 3 years before producing a seed crop. Seed can be combined after the first frost in northern regions and shattering is generally not a problem. Seed yields at the Bismarck, North Dakota, Plant Materials Center have varied from 30 to 75 PLS lbs/acre with wide row spacing. Plantings used for seed production can become quite sodbound after 5 years and seed production inhibited. Rhizomes will need to be separated by some means, or a new field established.

Pests and Potential Problems: Pests do not appear to be a problem for vegetative material. Seed predation by insects is a problem in most areas except the extreme northern climates of the United States.

Cultivars, Improved and Selected Materials (and Area of Origin): Red River germplasm prairie cordgrass is a selection named and released by the Bismarck, North Dakota, Plant Materials Center. It is a composite of plant materials from Grant County, Minnesota; Cass and Grand Forks Counties in North Dakota; and Day County in South Dakota. Select Class seed and vegetative material is available in the commercial market of this selection. Atkins germplasm prairie cordgrass is a selection named and released by the Manhattan, Kansas, Plant Materials Center. Material for this release originated from Washington County, Nebraska. This is a Select Class vegetative release. There is no seed produced or available. Vegetative material is available for increase.